Data Management

Introduction	What is eCoastal?
Lecture	Importance of Spatial Data Standards
Exercise A	Creating a Geodatabase with the eCoastal Filter
Exercise B	Using the SDS Feature Browser

Module Introduction

Overview

This module will explain the importance and use of the eCoastal architecture. You will be asked to use the skills and knowledge you gained in this course to access to create and populate a geodatabase.

Tools and Technology

ArcGIS Components

- ArcMap
- ArcCatalog

Other Software

- SDSFIE Feature Browser
- SDSFIE Geodatabase Builder

Skills Learned

- Definition of eCoastal
- Understanding of the eCoastal architecture
- Understanding of Spatial Data Standards
- Using ArcCatalog to populate a geodatabase

Introduction: What is eCoastal?

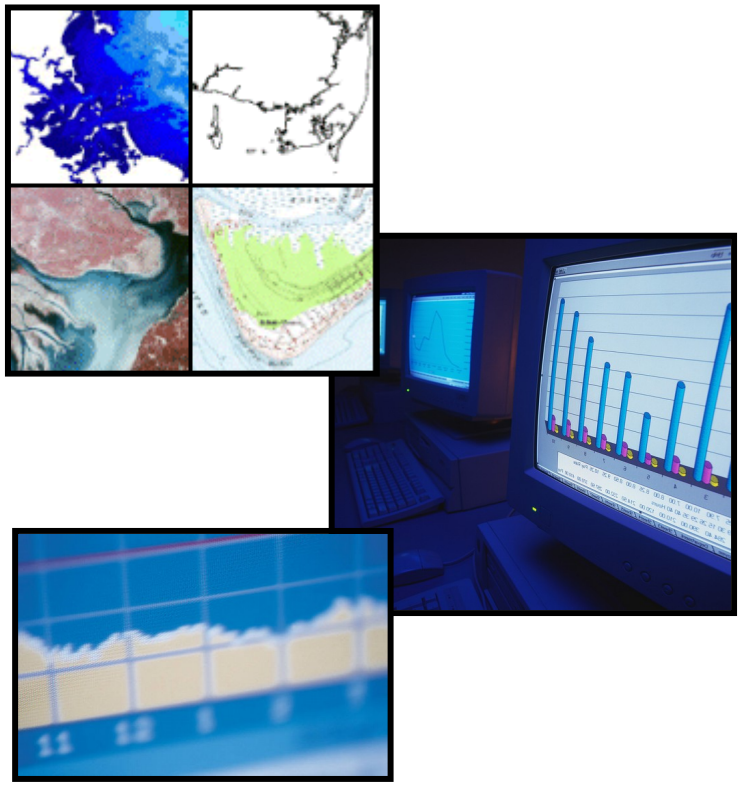
Enterprise GIS is defined as *the integration of geospatial technology infrastructure to deliver spatial information products, services and standard datasets to all business elements and processes of the organization.*

The concept of enterprise GIS (eGIS) is taking a complete organizational approach to sharing, using, and managing spatial information.

eCoastal is an enterprise GIS developed for coastal engineering business practices. It was developed to concentrate on the specific needs of the coastal engineer.

eCoastal is an architecture developed by the U.S. Army Corps of Engineers that addresses spatial data standards (SDS), geodatabase development, and desktop and web applications. It was designed as data management solution to provide baseline information for effective planning and prediction of regional and local coastal processes.

This architecture allows adjacent coastal projects to effectively share and access data contained in the system.



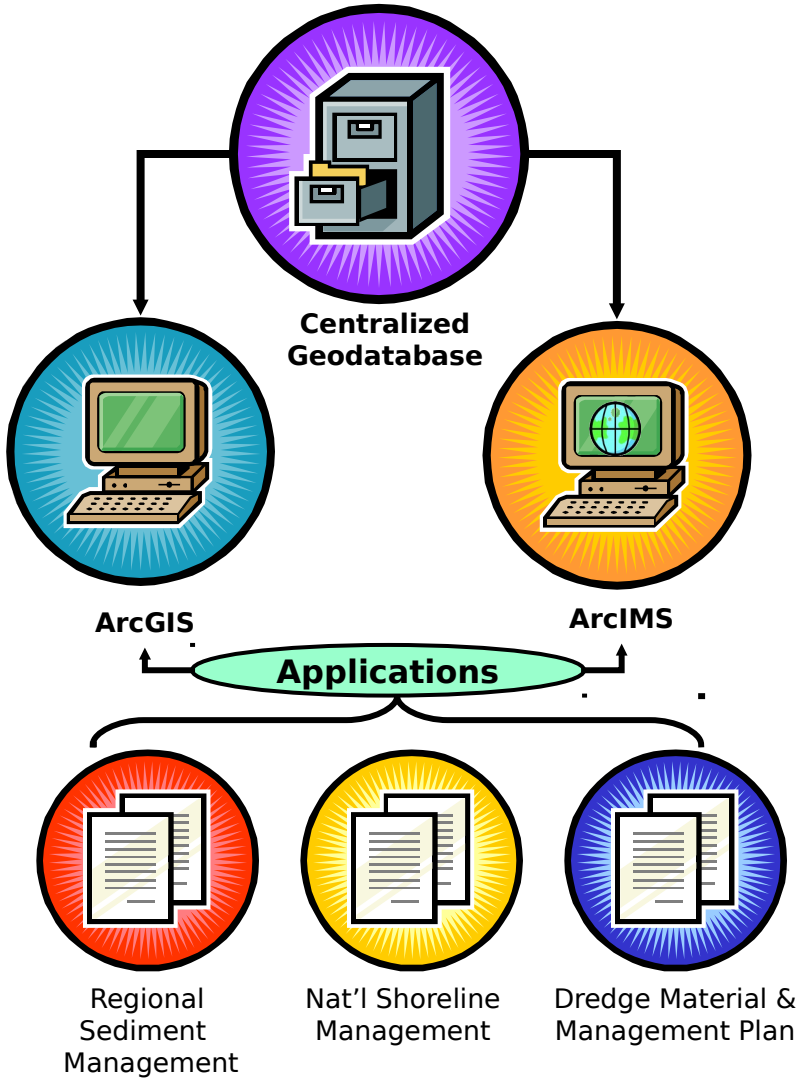
Introduction: Architecture Overview

The centralized geodatabase serves as the data repository for all spatial data accessed by the enterprise GIS applications. The underlying format of the enterprise database (SQL or ORACLE) is at the discretion of the local District Office.

Data collected or created for all coastal projects are imported into the geodatabase. Only one geodatabase exists to serve data to the public, via the Internet accessible interface, and to support the internal applications.

Natively, users can browse the geodatabase using ESRI's ArcCatalog™ or ArcMap™. However with eCoastal, a series of custom applications have been developed for ESRI's desktop products as well as the internet accessible, ArcIMS™ platform.

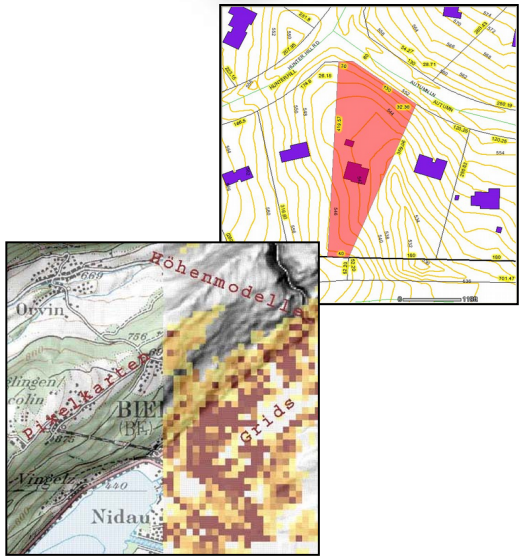
These applications were designed to assist the users of the enterprise system with access and analysis of the coastal data. Applications have been developed to support the needs of the existing and future coastal projects, such as the Regional Sediment Management, Dredge Material and Management Plan, or the National Shoreline Management projects.



Introduction: What is Spatial Data?

Spatial Data or Geospatial Data refers to –

- Information about the location and shape of, and relationships among, geographic features, usually stored as coordinates and topology.
- Data that can be linked to locations in geographic space, usually via features on a map.
- Data that define a location. These are in the form of graphic primitives that are usually either **points**, **lines**, **polygons** or **pixels**.
- Spatial data places the features on the map. The coordinates of a point are the most obvious example of this, but it also incorporates projection systems, line and polygon attributes, and other information. There are two main classes of spatial data: vector and raster.



The eCoastal database support **all types** of spatial data (vector and raster). The database structure is designed using the Spatial Data Standards (you will learn more about the Standards later in this course). The design creates pre-formatted placeholders to store specific categories of coastal data, such as navigation or shore protection data.

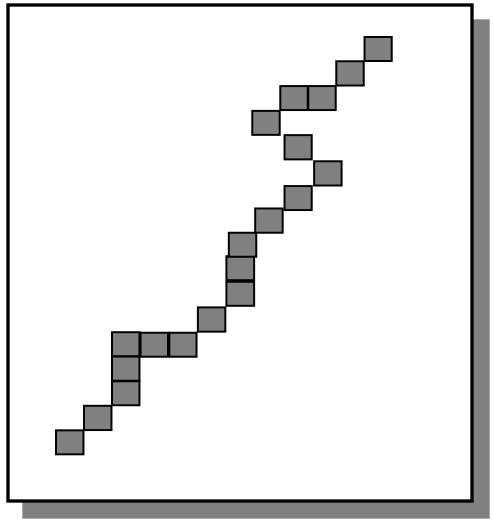
Introduction: GIS Theory

Vector Data sets

- A representation of a spatial phenomenon as a series of points, lines, or areas
- Points are referenced to a spatial coordinate system, lines to points, and areas to their lines
- Each entity has an ID, which is linked to attribute data in a separate database file

Raster Data sets

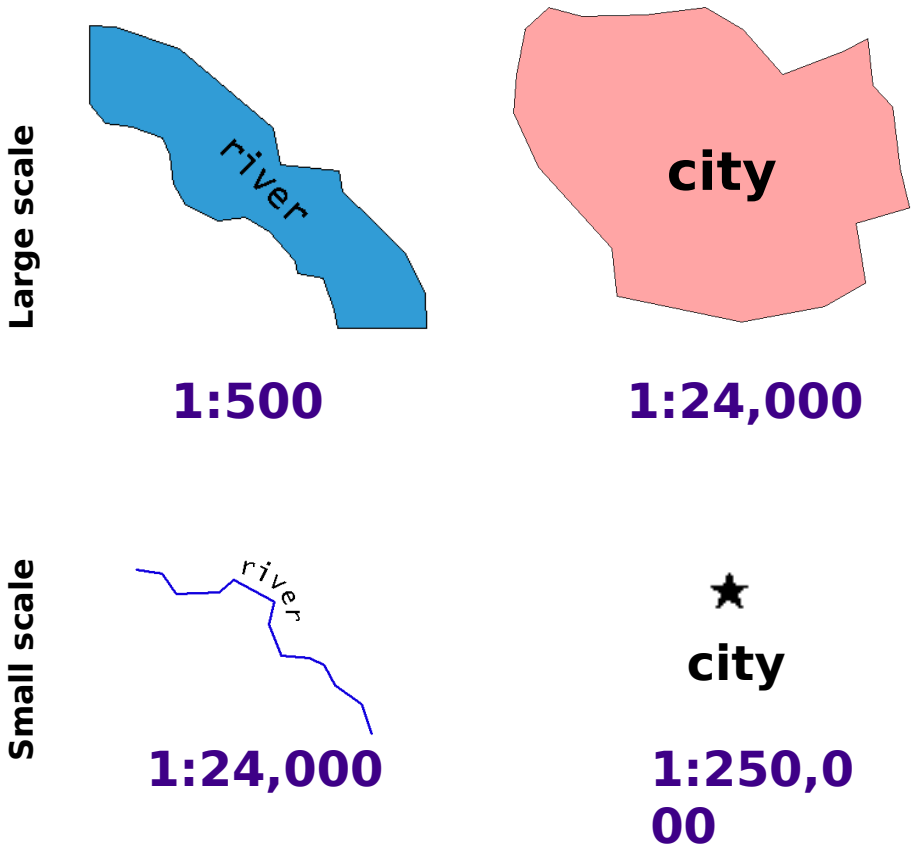
- A representation of a spatial phenomenon as a series of grid cells, or pixels
- Point phenomena are represented as single cells, lines as a series of connected cells, and areas as groups of connecting cells
- Each pixel has an associated value or array of values



Introduction: GIS Theory

Scale

- Remember, spatial data sets are only representations of real-world phenomena
- Scale determines the size and shape of features in a GIS
- At larger scales, many spatial phenomena are represented as areas
- As you decrease the scale of the map, many phenomena are represented as points or lines



Data Management

Introduction: Spatial Data Formats

Spatial Data can be acquired in a variety of formats, such as MS Word documents, Adobe PDF, MS Excel, ASCII text files, ESRI shapefiles or feature classes, etc. However, when working with an enterprise GIS system, the best way to acquire spatial data is in a GIS compatible formats. Some of these formats include:

-Comma-delimited text files (ASCII text)

-Microsoft Excel Spreadsheets

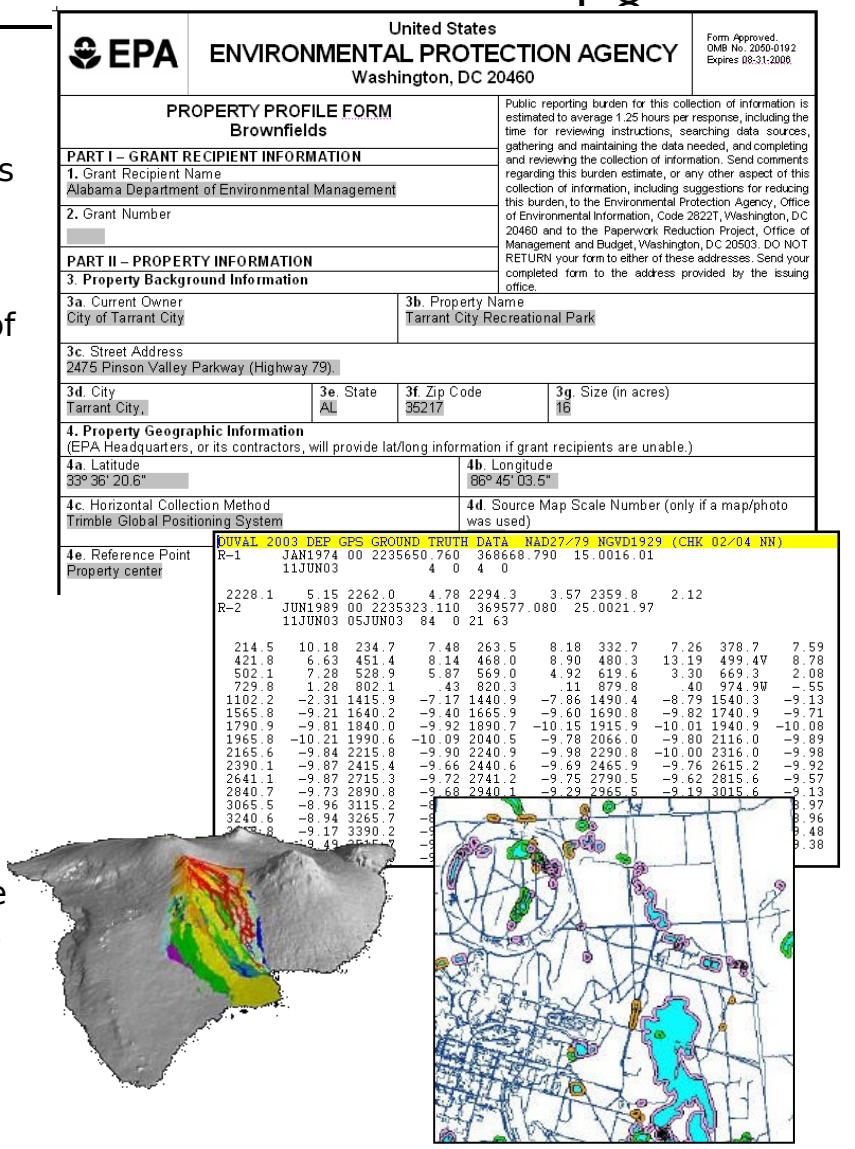
-Microsoft Access Databases

-ESRI shapefiles or geodatabase feature classes

-Raster data in .tif, .tiff, .jpg, .jp2, .img, .sid with accompanying world files.

If data is not collected in one of the above formats, it requires more data editing to transform the data into a compatible file.

The US Army Corps of Engineers has adopted the ESRI suite of products to support GIS analysis and spatial data editing. To utilize and have access to all of the tools contained eCoastal and ESRI's ArcMap on the whole, data must be compatible with the software.



EPA

United States
ENVIRONMENTAL PROTECTION AGENCY
Washington, DC 20460

Form Approved.
OMB No. 2050-0192
Expires 08-31-2006

PROPERTY PROFILE FORM
Brownfields

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PART I – GRANT RECIPIENT INFORMATION

1. Grant Recipient Name: Alabama Department of Environmental Management

2. Grant Number:

PART II – PROPERTY INFORMATION

3. Property Background Information

3a. Current Owner: City of Tarrant City

3b. Property Name: Tarrant City Recreational Park

3c. Street Address: 2475 Pinson Valley Parkway (Highway 79).

3d. City: Tarrant City,

3e. State: AL

3f. Zip Code: 35217

3g. Size (in acres): 16

4. Property Geographic Information
(EPA Headquarters, or its contractors, will provide lat/long information if grant recipients are unable.)

4a. Latitude: 33° 36' 20.6"

4b. Longitude: 86° 45' 03.5"

4c. Horizontal Collection Method: Trimble Global Positioning System

4d. Source Map Scale Number (only if a map/photo was used)

4e. Reference Point: Property center

Introduction: Acquiring New Datasets

New Scopes of Work

When writing new scopes of work to acquire additional datasets, a line item should be placed to make reference to the spatial data deliverables. All deliverables need a formatting requirement defined, so why not ask for exactly what you need? In most cases, the contract will not increase in cost to have your data delivered in a GIS-ready format.

Sample Contract Language

All mapping and GIS work performed as part of this contract will conform to the following standards for accuracy, content, and structure: All large-scale mapping projects (scales larger than 1 inch (in.) = 1,667 feet (ft.)), shall follow the Government Standards (Army, Navy, Air Force) and/or "ASPRS Accuracy Standards for Large Scale Maps" (ASPRS 1990) classification standard. Small-scale mapping (scales smaller than 1:24,000) projects will follow the OMB "United States National Map Accuracy Standards" (Bureau of the Budget 1947). All spatial data generated as part of this contract will conform to the most current release of the TSSDS. The contractor shall submit a written request for approval of any deviations from the Government's established standards. No deviations from the Government's established standards will be permitted unless prior written approval of such deviation has been issued by the Government Contracting Officer.

Introduction: Acquiring New Datasets

Don’t forget about the Metadata!

In order to preserve the integrity of the enterprise GIS, it is vital to keep metadata records for each piece of data contained in the system. When writing the documentation to acquire new data, don’t forget a line item to supply a complete metadata record for each dataset.

-Protects investment in data:
- mitigates effect of staff turnover and individual memory loss
- sets the stage for data re-use and update
- provides documentation of data sources and quality

-Helps user understand data:
- provides consistency in terminology
- focuses on key elements of data
- helps user determine the data's fitness for use
- facilitates data transfer and interpretation by new users

-Enables discovery
- provides information to data catalogs and clearinghouses
- provides flexibility in searching to support interdisciplinary usage
- a key element in the future of spatial data sharing

-Limits Liability: can prevent data from being inappropriately used or provides protection if data is inappropriately used

-Can prevent embarrassing or expensive disasters
- Evidence of prudent data stewardship: an organization that takes the time to create and maintain quality metadata will also mostly likely take the time to develop good quality, clean data

-Reduces workload associated with questions about data: users don't have to keep asking producers questions

-Cuts overall costs: allows automation of tools which ease overall burden and cost of data population and maintenance

Introduction: Storing New Datasets in the Enterprise Geodatabase

But I'm the only one who uses this data, do I really need to submit it to the enterprise GIS?

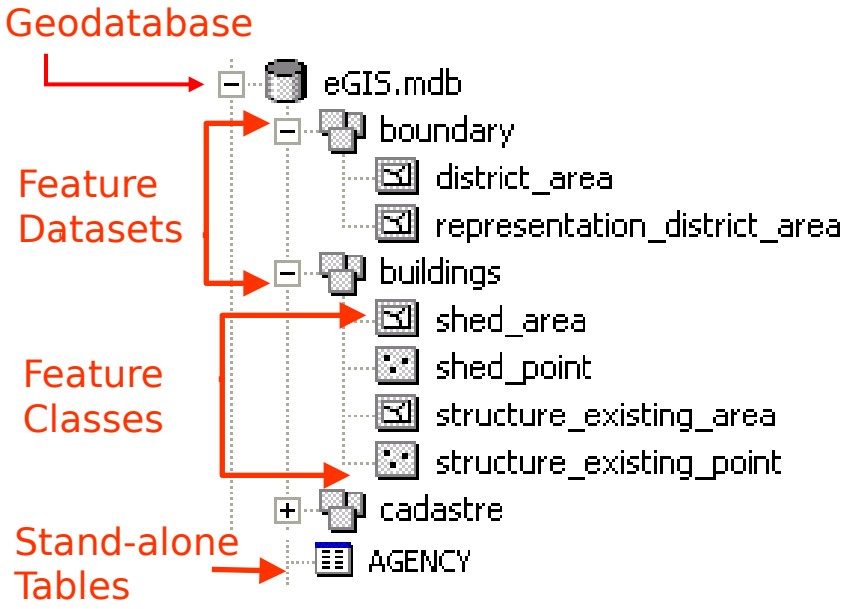
Yes! The USACE spends millions of dollars each year on the acquisition of new spatial data. Enterprise GIS is a tool to preserve our intuitional knowledge and provide all users access to your data. In recent years, the USACE has begun to focus on managing projects on a regional scale. By allowing adjacent projects to share your data, we are saving time and resources on data mining, data storage, and data analysis.

Introduction: Data Storage

The Geodatabase

A Geodatabase is a proprietary (ESRI/ArcGIS) storage format that represents geographic features and attributes as objects and is hosted inside a relational database management system. It is organized into a variety of feature datasets and sub-divided into feature classes, as defined by the ***Spatial Data Standard***.

- Enterprise Level
  - SQL, ORACLE format
  - Allows for raster data and vector data storage
  - Requires ArcSDE for management, ArcEditor/ArcInfo for editing
- Personal Geodatabase
  - MS Access format
  - Allows only vector data storage (depending on software version)
  - Does not require ArcSDE or ArcInfo licenses for editing
  - 2 GB Limit



Introduction: Data Storage

File-Based Geodatabase, *ESRI Press, ArcNews - 2005*

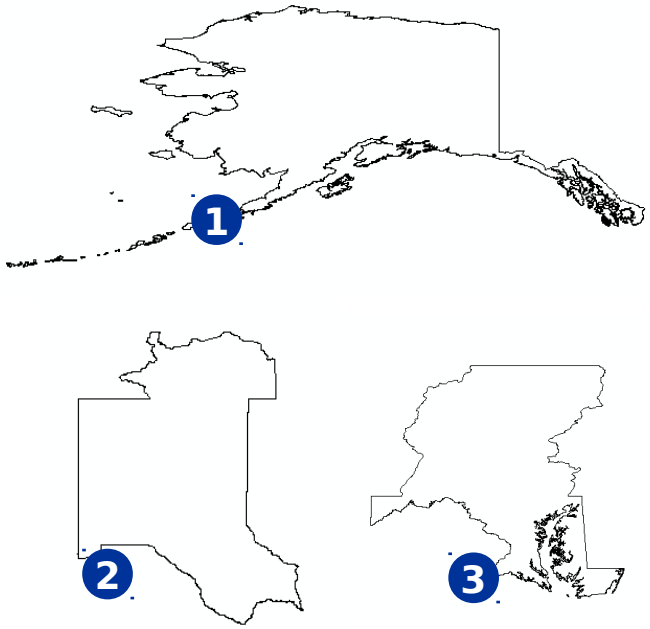
At ArcGIS 9.2, the complete functionality of a personal geodatabase and its complete information model have been implemented on top of a file system. File-based geodatabases fully support vector; raster; terrain; annotation; and all other geodatabase data types, rules, and relationships without the performance and geodatabase size limitations of a Microsoft Access database.

In performance tests to date, the file-based geodatabase implementation not only outperforms the Microsoft Access personal geodatabase, but it also outperforms the shapefile for display and query operations. As with the Microsoft Access personal geodatabase, the file-based geodatabase has a single-user editing model and does not support versioning. The file-based geodatabase will be a standard part of core ArcView, ArcEditor, ArcInfo, ArcGIS Engine, ArcIMS, ArcMap Server, and ArcGIS Server. While Microsoft Access personal geodatabases will continue to be a supported option, users will be encouraged to adopt file-based geodatabases as the native format for ArcGIS at 9.2 and beyond (converting data from Microsoft Access geodatabases to file-based geodatabases is a simple copy/paste operation). Since they can be compressed and are cross platform (Linux, Solaris, and Windows), file-based geodatabases are a good choice for data publishing. Like it did with shapefiles, ESRI is providing an open API that will allow anyone to create and use file-based geodatabases.

Introduction: Data Storage

The Feature Class

Feature classes are a collection of geographic features with the same geometry type (such as point, line, or polygon), the same attributes, and the same spatial reference. Feature classes can stand alone within a geodatabase or be contained within shapefiles, coverages, or other feature datasets. Feature classes allow homogeneous features to be grouped into a single unit for data storage purposes.



Below is the table view of the USACE boundary feature class. Here, attributes (DIST_NAME, DIST_NUM, etc.) describe the individual pieces of data and the SHAPE column stores the geometry of the feature.

Using Spatial Data Standards, all features representing the same data type, such as Survey points, are stored within the same feature class. Attribution of the data record identifies the survey details, such as collection date or name.

	OBJECTID*	SHAPE*	SUBTYPEID	distct_id	map_i	met	me	coor	dis_typ_d	dist_name	dist_num
▶	1	Polygon Z								Alaska	
	2	Polygon Z								Albuquerque	
	3	Polygon Z								Baltimore	

Lecture: Spatial Data Standards

The ***Spatial Data Standard for Facilities, Infrastructure, and Environment*** (**SDSFIE**) provides a standardized grouping of geographically referenced (i.e., geospatial) features (i.e., real-world features or objects depicted graphically on a map at their real-world location (i.e., coordinates). Each geospatial feature has an "attached" attribute table containing pertinent data about the geospatial feature.

The SDSFIE is the only "nonproprietary" GIS data content standard designed for use with the predominant commercially available off-the-shelf GIS and CADD (e.g., ESRI ArcInfo and ArcView; Intergraph MGE and GeoMedia; AutoDesk AutoCAD and Map; and Bentley MicroStation and GeoGraphics), and relational database software (e.g., Oracle and Microsoft Access). This nonproprietary design, in conjunction with its universal coverage, has propelled the SDSFIE into the standard for GIS implementations throughout the Department of Defense (DoD), as well as the de facto standard for GIS implementations in other Federal, State, and local government organizations; public utilities; and private industry throughout the United States and the World.

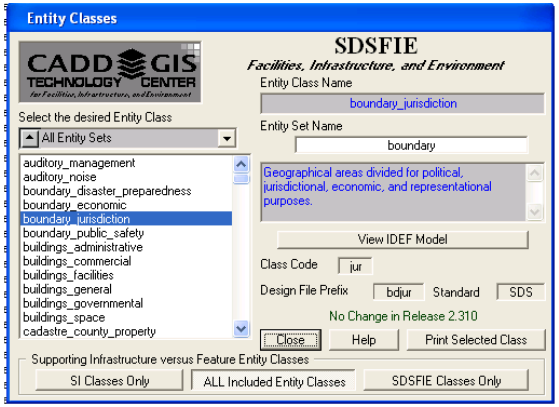
The Spatial Data Standard represents an organization of data without regard to application. The assignment of specific entities to entity sets is a function of data maintenance rather than data use. In this way, it is possible to reduce redundancy of information within the standard. This schema meets data sharing requirements of the National Spatial Data Infrastructure (NSDI).

Lecture: Spatial Data Standards

Effect of Standards on eCoastal

The USACE eGIS program desired a standardized Geodatabase to

- Allow custom GIS applications could be built upon a common framework.
- Allow easy distribution of applications with little to no reprogramming.
- Allow easy data sharing across various Corps Districts and the public.
- Have an easy and cost effective way for distribution to other Districts.



Spatial Data Standards define the nomenclature of the feature datasets, feature classes, and attribution of all features stored within the geodatabase. This standardization allows the data and custom applications, that interface directly with datasets, to be easily shared among other districts or with those agencies using Spatial Data Standards.

To download the Spatial Data Standards software, visit:
http://www.sdsfie.org

SDSFIE
Spatial Data Standards for Facilities, Infrastructure, and Environment
The single DoD spatial standard that supports common implementation for installations, environment, and civil works missions
Search
Go
Wednesday, November 07, 2007
Login | Register
SDSFIE Home
Support
Discussions
Calendar
Web Tools
Contact Us
Welcome Message
Welcome to The new SDSFIE. The SDSFIE Steering Group, made up of members from the Armed Forces and the U.S. Army Corps of Engineers, has set an ambitious goal of creating the DoD standard for facilities, infrastructure, environment, and civil works. To obtain such a lofty vision, SDSFIE has to undergo major changes and this new web site is the first of many. Over the next year, a new Logical Data Model (LDM) for SDSFIE will emerge. Throughout that period, users will be able to provide input, making it the best possible model. Participation from the community, along with the talents of a dedicated contractor team can create an easily implemented LDM that will serve users' needs. However, the LDM is only part of the story. SDSFIE success depends on better communication, new training, and new tools. Please visit the page frequently for updates and your chance to participate.

Exercise A: Building a Geodatabase from a SDS Filter

Background

Prior to data being imported into the geodatabase, a database model must exist. Under the eCoastal program, a database filter has been generated to be used with the SDSFIE software. This filter extracts coastal related features from the database model. Once applied, a template geodatabase is created and ready for data importation.

*This exercise references the SDSFIE Release 2.50 application.

Goal

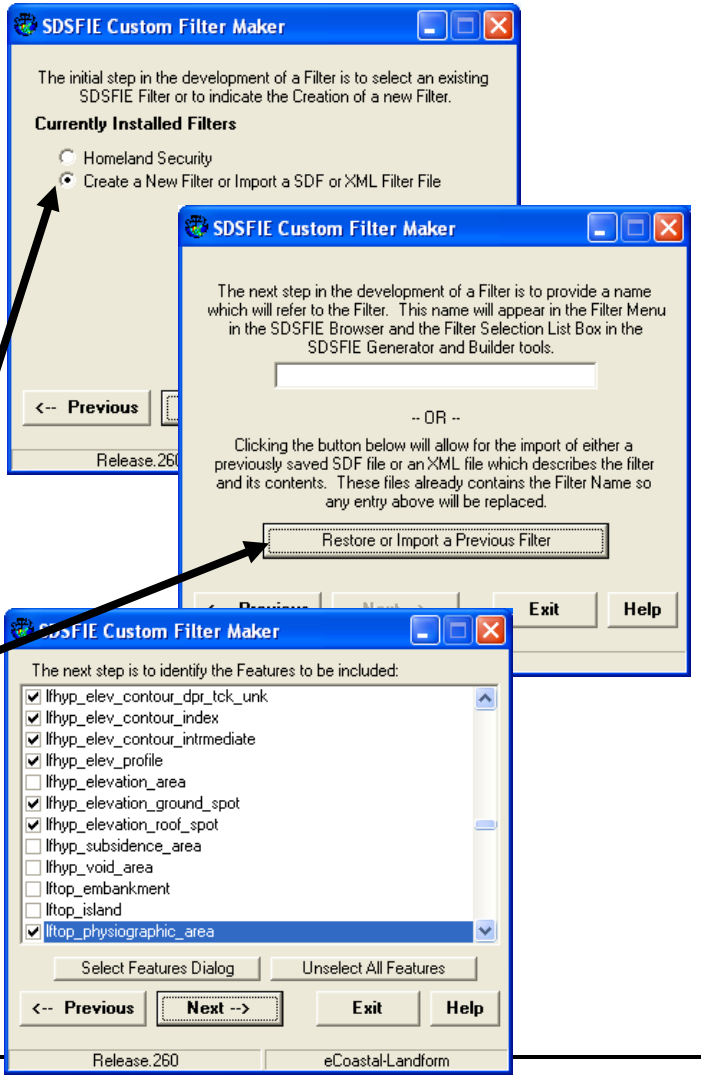
After this exercise the user will be able to create a SDS compliant geodatabase using the eCoastal database filter.

Objectives

1. Download the SDS filter
2. Apply the SDS filter

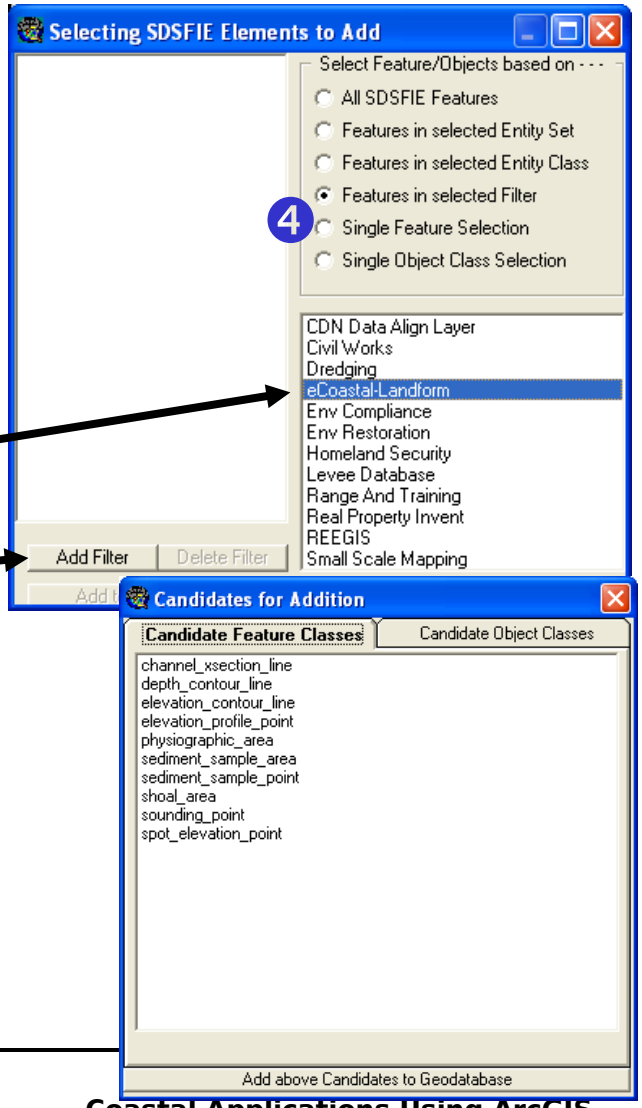
Exercise A: Building a Geodatabase from a SDS Filter

1. The SDS eCoastal database filter is available for download on the **Documentation** page of the **eCoastal website** (http://eCoastal.usace.army.mil). The filter is categorized under “Spatial Data Standards”.
   - ❑ For this example, go to the website and *download the database filter* from the **Training** page under the **MSU Training** category. Save the filter to the your *training directory*.
2. To generate a geodatabase from the filter, first import the filter into the SDSFIE software.
   - ❑ From the Start menu select Programs → Spatial Data Standards → SDSFIE Filter Maker
   - ❑ Click Next on the home screen, and on the following dialog select “Create a New Filter of Import a SDF or XML Filter File”.
   - ❑ Click the “Restore of Import a Previous Filter” button. Browse to the training directory, and load the eCoastal-Landform.SDF file. Click the Next button.
   - ❑ This form will show the contents of the imported filter. From here, you can add additional features into the geodatabase template. For this example, will keep the current selection and click Next.
   - ❑ Click the “Create” button on the final screen to finalize the filter import. Click “Close” and “Complete” on the verification forms.

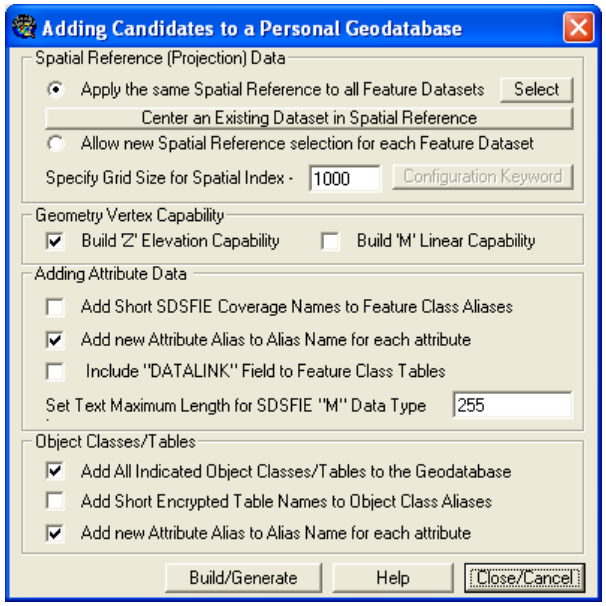

SDSFIE Custom Filter Maker
The initial step in the development of a Filter is to select an existing SDSFIE Filter or to indicate the Creation of a new Filter.
Currently Installed Filters
Homeland Security
Create a New Filter or Import a SDF or XML Filter File
<-- Previous
Release.260
SDSFIE Custom Filter Maker
The next step in the development of a Filter is to provide a name which will refer to the Filter. This name will appear in the Filter Menu in the SDSFIE Browser and the Filter Selection List Box in the SDSFIE Generator and Builder tools.
-- OR --
Clicking the button below will allow for the import of either a previously saved SDF file or an XML file which describes the filter and its contents. These files already contains the Filter Name so any entry above will be replaced.
Restore or Import a Previous Filter
Exit
Help
SDSFIE Custom Filter Maker
The next step is to identify the Features to be included:
lfhyp_elev_contour_dpr_tck_unk
lfhyp_elev_contour_index
lfhyp_elev_contour_intrmediate
lfhyp_elev_profile
lfhyp_elevation_area
lfhyp_elevation_ground_spot
lfhyp_elevation_roof_spot
lfhyp_subsidence_area
lfhyp_void_area
lftop_embankment
lftop_island
lftop_physiographic_area
Select Features Dialog
Unselect All Features
<-- Previous
Next -->
Exit
Help
Release.260
eCoastal-Landform

Exercise A: Building a Geodatabase from a SDS Filter

1. The next step will be to apply the filter and build a geodatabase template.
   - ❑ From the Start menu select Programs → Spatial Data Standards → SDSFIE Geodatabase Support → SDSFIE Geodatabase Builder.
2. From the Open menu, select “Create Personal Geodatabase”
3. Browse to the ‘Training’ directory on your local training and save this database template as “eCoastal”.
4. Choose “Features in a selected Filter” for the Select Features/Objects based on option.
   - ❑ From the available list, choose “eCoastal-Landform”
   - ❑ Click the “Add Filter” button.
   - ❑ Click the “Add to Candidate List” button.
5. All of the features in the selected filter will be shown in the form. To create a geodatabase with these features, click the “Add above Candidates to Geodatabase”.



Exercise A: Building a Geodatabase from a SDS Filter


Adding Candidates to a Personal Geodatabase
Spatial Reference (Projection) Data
Apply the same Spatial Reference to all Feature Datasets
Select
Center an Existing Dataset in Spatial Reference
Allow new Spatial Reference selection for each Feature Dataset
Specify Grid Size for Spatial Index -
1000
Configuration Keyword
Geometry Vertex Capability
Build 'Z' Elevation Capability
Build 'M' Linear Capability
Adding Attribute Data
Add Short SDSFIE Coverage Names to Feature Class Aliases
Add new Attribute Alias to Alias Name for each attribute
Include "DATALINK" Field to Feature Class Tables
Set Text Maximum Length for SDSFIE "M" Data Type
255
Object Classes/Tables
Add All Indicated Object Classes/Tables to the Geodatabase
Add Short Encrypted Table Names to Object Class Aliases
Add new Attribute Alias to Alias Name for each attribute
Build/Generate
Help
Close/Cancel

1. If the entire geodatabase will have the same spatial reference, select “Apply the same Spatial Reference to all Feature Datasets”. If each feature dataset in the geodatabase will have different spatial references, select “Allow new Spatial Reference selection for each Feature Dataset”. When a feature dataset is created by the Geodatabase Builder, the spatial reference has to be defined.
   - ❑ Click the “Select” button to set the spatial reference.
   - ❑ From the “New Spatial Reference” from, click the “Select” button and browse to the desired spatial reference. For this example, we will be using NAD1983 (Browse to: Geographic Coordinate System → North America → North American Datam 1983.prj) and click the “Add” button. Click “Next”.
   - ❑ Accept the remaining default values and click the “Build/Generate” button. A new template geodatabase will be built using the Spatial Data Standards nomenclature for feature datasets, feature classes, and feature attributes.
2. When the geodatabase is finished building, open ArcCatalog and view its contents. Notice the structure of the feature dataset and related feature classes.

Exercise A: Building a Geodatabase from a SDS Filter

1. In ArcCatelog, browse to the newly created geodatabase and expand (+) the eCoastal database.

2. Locate the dataset that most closely matches the Entity Set (Landform) from the SDS Feature Browser.

   - Expand the **landform** feature dataset.

3. Select the desired feature class.

   - Select **sediment_sample_site**

4. Preview the attribute table of the feature class

   - From the preview tab, change the preview option to "Table"

5. To get a definition of each of the newly created attributes we will use the SDSFIE Feature Brower.

Glossary

Entity Set:
The name of a generalized thematic group, the highest level of graphic and non-graphic data hierarchy represents data organized at project level. Entities are generally assigned to *Entity Sets* based on data maintenance responsibility to allow users to focus on smaller elements within the standard.

Entity Class:
The logical grouping of geographical features or entities within a given class. In some applications, this grouping corresponds to the design file or drawing file which contains the entities. The names of the ***Entity Classes*** are chosen to logically group the entities.

Exercise B: Using the SDS Feature Browser

Background

Prior to data being imported into the geodatabase, the appropriate feature dataset/feature class must be determined. The CADD/GIS Center has developed the SDS Feature Browser. This allows users to search the database to locate the suitable standard for the selected feature.

In this exercise, we would like to find the SDS feature class for a Shoreline shapefile.

*This exercise references the SDSFIE Release 2.50 application.

Goal

After this exercise the user will be able to search the Spatial Data Standards using the SDS Feature Browser.

Objectives

1. Search and locate suitable standard for selected feature.
2. Find SDS feature class in the geodatabase

Using a SDS Feature Browser – Instructor Demonstration

Notes:

Exercise B: Using the SDS Feature Browser

1. From the **Start** Menu Select **Programs → Spatial Data Standards → SDSFIE Browser**.

2. From the **Browse** menu, select **By Keyword**. Enter in a Keyword.

   ☐ Enter “sediment_sample”

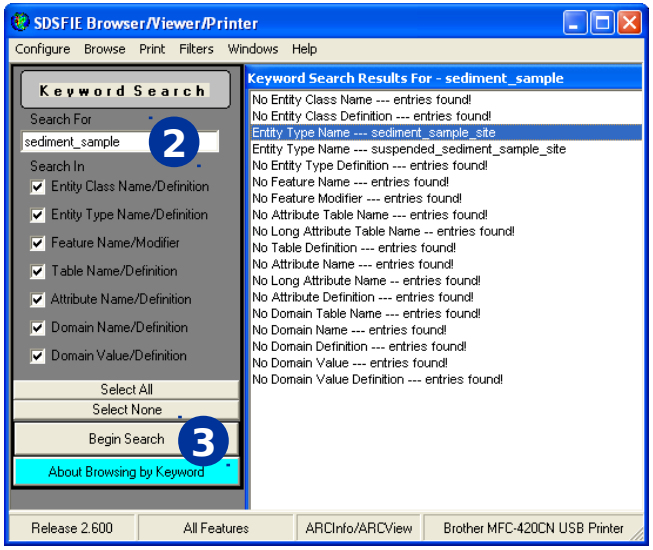
3. Click the Begin Search button. This will retrieve a list of matching results.

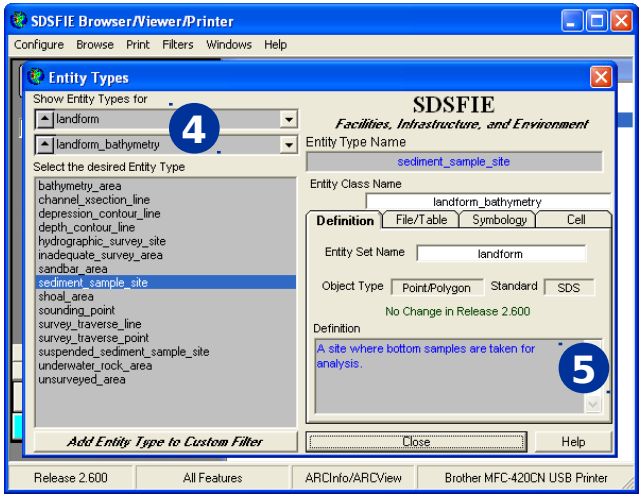
   ☐ Double-click on the desired record. This will display details on the selected record.

   ☐ Double-click on **Entity Type Name – sediment_sample_site**

4. Notice that the Entity Set is **Landform and the Entity Class is Landform_bathymetry**. This will be the general feature dataset in the geodatabase.

5. View the definition of this feature.


SDSFIE Browser/Viewer/Printer
Configure Browse Print Filters Windows Help
Keyword Search
Search For
sediment_sample
2
Search In
Entity Class Name/Definition
Entity Type Name/Definition
Feature Name/Modifier
Table Name/Definition
Attribute Name/Definition
Domain Name/Definition
Domain Value/Definition
Select All
Select None
Begin Search
3
About Browsing by Keyword
Keyword Search Results For - sediment_sample
No Entity Class Name --- entries found!
No Entity Class Definition --- entries found!
Entity Type Name --- sediment_sample_site
Entity Type Name --- suspended_sediment_sample_site
No Entity Type Definition --- entries found!
No Feature Name --- entries found!
No Feature Modifier --- entries found!
No Attribute Table Name --- entries found!
No Long Attribute Table Name -- entries found!
No Table Definition --- entries found!
No Attribute Name --- entries found!
No Long Attribute Name -- entries found!
No Attribute Definition --- entries found!
No Domain Table Name --- entries found!
No Domain Name --- entries found!
No Domain Definition --- entries found!
No Domain Value --- entries found!
No Domain Value Definition --- entries found!
Release 2.600
All Features
ARCInfo/ARCView
Brother MFC-420CN USB Printer



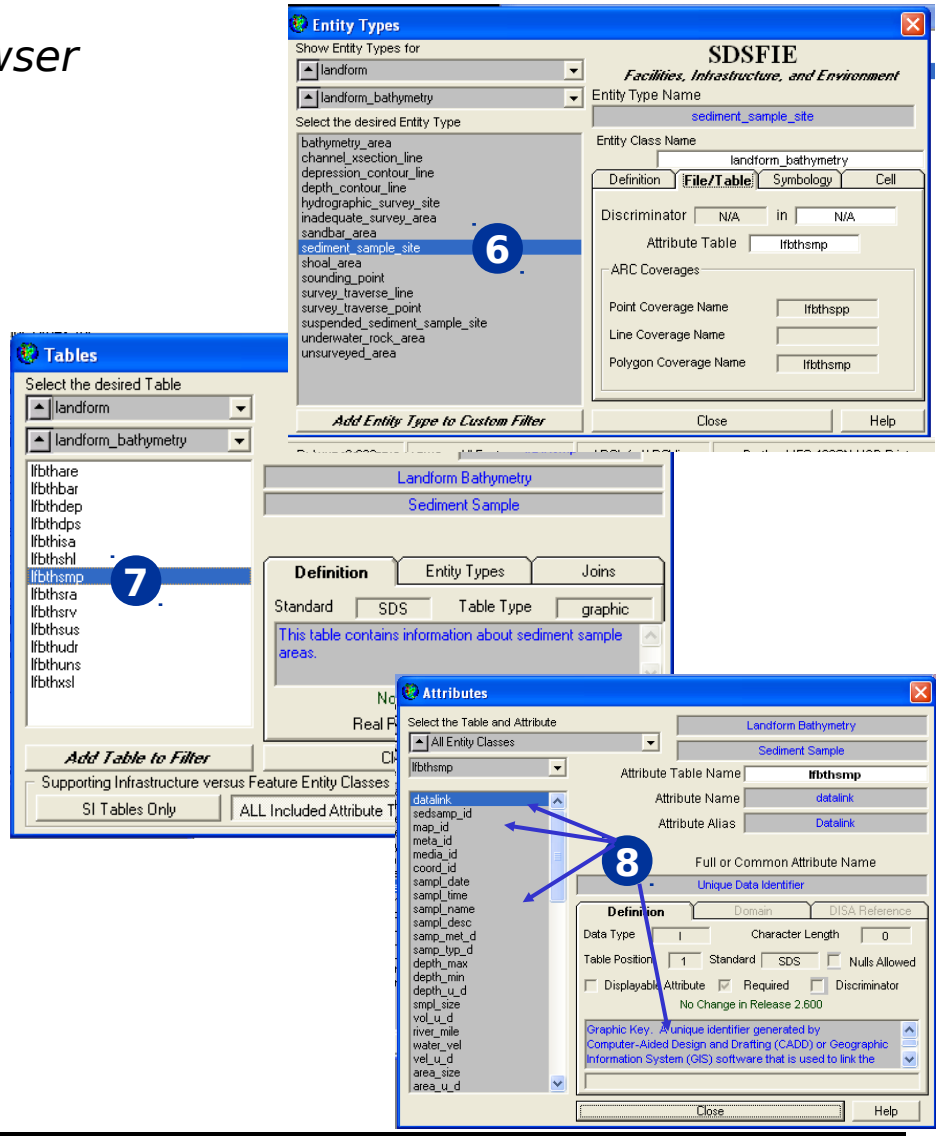
Exercise B: Using the SDS Feature Browser

6. To view the attribute definitions of this table, click on the File/Table tab.

   - Double-click on the Attribute Table name **lfbthsmp**. This will display a list of available attribute tables.

7. Double-click on the Attribute Table named **lfbthsmp** in the list on the left. This time a definitive of field attributes will be displayed.

8. Click to select attribute names in the list. Descriptor information will be listed in the lower-right corner of the application dialog. This information will assist you in determining what values should be stored in which columns.



Exercise B: Using the SDS Feature Browser

Creating a Correlation Matrix:
A correlation matrix is used to match existing, non-SDS attributes, to the SDS attributes found in the SDS Feature Browser application. At the current time, an application does not exist to assist in the data entry. It is recommended that a Microsoft Excel Spreadsheet is created that maps the existing attribute names to appropriate SDS attribute name. The spreadsheet will be used for the metadata description and when importing a non-SDS feature class into the SDS geodatabase.

1. In ArcCatalog, browse to **alshrln_1982.shp** located in data folder in the training directory.

2. Preview the attribute table of this shapefile.

   - The attributes are listed in the table to the right.

3. In the SDS Feature Browser, find the attributes that most closely match the that of those in the non-SDS feature class.

   - If attributes are questionable, check the Metadata!

   - For this example the SDS attributes have been supplied in the table to the right.

NON-SDS	SDS
alshrln.shp	shoreline
ALSHR_ID*	SHORLN_ID
F_NAME	SHORE_DESC
LENGTH	SHORE_LEN
SHR_TYP_D	F_CODE

*In this example the ALSHR_ID is an identifier given by the data supplier.

Exercise B: Using the SDS Feature Browser

Exercise Summary

This exercise introduced you to the Spatial Data Standards. These standards are the foundation of eCoastal. Database structure and applications are intentionally designed to work directly with this industry standard. You were able to browse the standards with the SDS Feature Browser, find a desired dataset in the geodatabase and create a simple correlation matrix.

Module Overview

In this module you learned the basic architecture of the eCoastal system and the importance and use of Spatial Data Standards inside the geodatabase. This foundation will allow you to more efficiently manage and organize GIS projects.